CLAIMS

1. Method for receiving an ultra-wideband signal representative of symbols, this signal which is transmitted over a transmission channel comprising, over a symbol time, a series of modulated successive direct pulses, each pulse being propagated along at least one direct propagation path, with which series a plurality of separate successive secondary pulses are associated which are each propagated along a secondary propagation path, characterised in that, with the series of modulated successive direct pulses and the plurality of secondary pulses associated with each of the modulated successive direct pulses being received on the same receiving circuit, the method consists in:
- producing a composite correlation pattern which is constituted by a series of elemental correlation patterns, the series of elemental correlation patterns comprising a first elemental correlation pattern which is associated with each direct pulse and successive elemental correlation patterns which are each associated with a successive secondary pulse, the successive elemental correlation patterns being staggered over time relative to the first elemental correlation pattern by the difference in propagation time between the propagation time of the direct pulse over the direct propagation path and the propagation time of the associated secondary pulse which is propagated over the corresponding secondary propagation path;
- calculating the value of the global intercorrelation coefficient between each direct pulse associated with the plurality of secondary pulses and the composite correlation pattern, which allows a global correlation value to be obtained for the symbol, being the sum of the intercorrelation coefficients of each of the direct and

secondary pulses obtained for each of the modulated pulses
transmitted for the same symbol.

2. Method according to claim 1, characterised in that the
step which consists in calculating the value of the global
intercorrelation coefficient comprises:
- calculation of the elemental intercorrelation coefficient
between each elemental intercorrelation pattern and the
direct or secondary pulse associated with each of the
elemental intercorrelation patterns;
- integration, over the symbol time, of the group of
elemental intercorrelation coefficient values in order to
transmit the global intercorrelation coefficient value which
represents the global correlation value of the symbol.

3. Method according to either claim 1 or claim 2,
characterised in that, for a countable group of pulses,
direct pulse and secondary pulses, which are propagated over
a direct path or secondary path of a plurality of secondary
propagation paths, the method consists in retaining the first
N paths, the first N paths comprising the direct path which
corresponds to the shortest propagation time for the
associated modulated pulse, and N-1 secondary paths which
each correspond to a propagation time for a secondary pulse
which successively increases.

4. Method according to either claim 1 or claim 2,
characterised in that, for a countable group of pulses,
direct pulse and secondary pulses, which are propagated over
a direct path or secondary path of a plurality of secondary
propagation paths, the method consists in retaining N paths
for which the amplitude of the direct pulse or secondary
pulses is at a maximum.

5. Method according to either claim 3 or claim 4,
characterised in that the number N of retained paths is
adapted either in accordance with a selection criterion of
the first N paths or in accordance with a selection criterion
of the N paths which correspond to a maximum amplitude of the
direct pulse and the secondary pulses in accordance with the
propagation conditions, which allows the quality of the
connection via ultra-wideband signal to be optimised.

6. Method according to any one of claims 1 to 5,
characterised in that the step which consists in producing a
composite correlation pattern consists in:
- establishing, by means of correlation over at least one
symbol time, an image of the transmission channel in terms of
direct pulse or secondary pulses, of the propagation time and
the difference in propagation time between the direct pulse
and successive secondary pulses,
- updating, by means of sliding correlation, the image of the
transmission channel in order to update the appearance and
disappearance of secondary propagation paths and/or the
direct propagation path, and to establish, over at least one
symbol time, the composite correlation pattern as an updated
image of the transmission channel.

7. System for receiving an ultra-wideband signal
representative of symbols, this signal which is transmitted
over a transmission channel comprising, over a symbol time, a
series of modulated successive direct pulses, each modulated
pulse being propagated along at least one direct propagation
path, with which series a plurality of separate successive
secondary pulses are associated which are each propagated

along a secondary propagation path, characterised in that it
comprises at least:
- common means for receiving the series of modulated
successive pulses and the plurality of secondary pulses
associated with each of the modulated successive direct
pulses, and, connected to the common receiving means,
- a means for acquiring and updating, over at least one
symbol time, an image of the transmission channel, in terms
of direct pulse or secondary pulses, of the propagation time
and the difference in propagation time between the direct
pulse and successive secondary pulses, the acquisition and
updating means allowing, by means of sliding correlation, the
appearance and disappearance of secondary propagation paths
and/or the principal propagation path to be updated and, over
at least one symbol time, a composite correlation pattern to
be established which is constituted by a series of successive
elemental correlation patterns which are each associated with
a direct pulse and a plurality of successive secondary pulses,
each successive elemental correlation pattern being staggered
over time relative to the first elemental correlation pattern
associated with each direct pulse, by the difference in
propagation time between the propagation time of the direct
pulse over the direct propagation path and the propagation
time of the associated secondary pulse which is propagated
over the corresponding secondary propagation path, the
acquisition and updating means allowing a path list signal to
be transmitted representing the image of the transmission
channel;
- a single correlation means which receives the path list
signal for direct and secondary propagation paths and which
allows the value to be calculated for the global
intercorrelation coefficient between each direct pulse which
is associated with the plurality of secondary pulses and the

composite correlation pattern, which allows a global correlation value to be obtained for the symbol, being the sum of the intercorrelation coefficients of each of the direct and secondary pulses obtained for each of the modulated pulses transmitted for the same symbol.

8. System according to claim 7, characterised in that the acquisition and updating means comprises:
- at least one global acquisition and tracking correlation means which receives the series of successive pulses from the common receiving means and which transmits a global acquisition correlation coefficient value;
- a channel scanning and tracking module which receives at least the global acquisition correlation coefficient value and the global correlation coefficient value and which transmits, on the one hand, the path list signal for direct and secondary propagation paths, and, on the other hand, a synchronisation signal to the global acquisition and tracking correlation means.

9. System according to claim 8, characterised in that the global acquisition and tracking correlation means comprises:
- a correlator which receives the series of successive pulses received and a summing integrator which transmits the acquisition correlation coefficient value;
- an elemental synchronisation pattern generator which receives the synchronisation signal and which transmits an acquisition correlation pattern to the correlator, the synchronisation signal consisting in a series of successive elemental correlation pattern times, which allows the path list signal to be updated for the following symbol time by means of sliding correlation based on the global correlation coefficient value transmitted by the single correlation means

for the preceding time symbol, in accordance with the
appearance and disappearance of direct and secondary
propagation paths in accordance with the variability of the
transmission channel.

10. System according to any one of claims 7 to 9,
characterised in that the path list signal transmitted by the
channel scanning and tracking module is formed by the
composite correlation times with the series of successive
pulses received, for which the global intercorrelation
coefficient value transmitted by the single correlation means
is at a maximum.

11. System according to any one of claims 8 to 10,
characterised in that it comprises a plurality of global
acquisition and tracking correlation means which receive the
series of successive pulses received, each global acquisition
and tracking correlation means being associated with an
elemental synchronisation pattern generator, the assembly
formed by a global acquisition and tracking correlation means
and by the elemental pattern generator associated therewith
receiving a specific correlation time list signal transmitted
by the channel scanning and tracking module, the specific
correlation time list signals corresponding to segments of
time which are staggered, which allows a series of successive
elemental correlation patterns to be produced by means of
successive complementary time segments by means of sliding
correlation and the acquisition time for the image of the
transmission channel to be substantially divided by the
number of global acquisition and tracking correlation means
which constitute the plurality of global acquisition and
tracking correlation means.

12. System according to any one of claims 7 to 11, characterised in that the single correlation means comprises at least:

- an elemental correlation pattern generator and, associated with this generator,

- a module for weighting at least one of the elemental correlation patterns which constitute the composite correlation pattern.